
APPENDIX B

IMPACT ASSESSMENT METHODS

B.1 INTRODUCTION

This appendix briefly describes the methods used to assess the potential direct, indirect, and cumulative effects of the treatment and management of sodium-bonded spent nuclear fuel. Included are impact assessment methods for air quality; water resources; socioeconomic; waste management; and cumulative impacts. Each section is organized so that the affected resource is described first, and then the impact assessment method is presented. Methodologies were not developed for land resources; site infrastructure; noise; geology and soils; ecological resources; and cultural and paleontological resources, since impacts to these resources either would not occur or would be very small. This is because new construction would not be required, airborne and aqueous effluent would be controlled and permitted, and infrastructure requirements would not change for any of the treatment and management alternatives. Descriptions of the methods for the evaluation of human health effects from normal operations; facility accidents; transportation; and environmental justice are presented in Appendices E, F, G, and H, respectively.

Impact analysis varied with the resource area. For air quality, for example, estimated pollutant concentrations from the proposed facilities were compared with the appropriate regulatory standards or guidelines. Comparison with regulatory standards is a commonly used method for benchmarking environmental impacts and was done here to provide perspective on the magnitude of the identified impacts. The analysis of waste management impacts compared waste generated by the management of sodium-bonded spent nuclear fuel to the capacities of waste management facilities. Impacts in all resource areas were analyzed consistently; that is, the impact values were estimated using a consistent set of input variables. Also, similar presentations were developed to facilitate the comparison of alternatives.

B.2 AIR QUALITY

B.2.1 Description of Affected Resources

Air pollution refers to any substance in the air that could harm human or animal populations, vegetation, or structures, or that unreasonably interferes with the comfortable enjoyment of life and property. For purposes of this environmental impact statement (EIS), only outdoor air pollutants were addressed. These may be in the form of solid particles, liquid droplets, gases, or a combination of these forms. Generally, they can be categorized as primary pollutants (those emitted directly from identifiable sources) and secondary pollutants (those produced in the air by interaction between two or more primary pollutants, or by reaction with normal atmospheric constituents that may be influenced by sunlight). Air pollutants are transported, dispersed, or concentrated by meteorological and topographical conditions. Thus, air pollutant emission characteristics, meteorology, and topography affect air quality.

Ambient air quality in a given location can be described by comparing the concentrations of various pollutants in the atmosphere with the appropriate standards. Ambient air quality standards have been established by Federal and state agencies to allow an adequate margin of safety for protection of public health and welfare from the adverse effects of pollutants in the ambient air. Pollutant concentrations higher than the corresponding standards are considered unhealthy; those below such standards are considered acceptable.

Final Environmental Impact Statement for the Treatment and Management of Sodium-Bonded Spent Nuclear Fuel

The pollutants of concern are primarily those for which Federal and state ambient air quality standards have been established, including criteria air pollutants, hazardous air pollutants, and other toxic air compounds. Criteria air pollutants are those listed in 40 CFR 50. Hazardous air pollutants and other toxic compounds are those listed in Title I of the 1990 Clean Air Act, as amended; those regulated by the National Emissions Standards for Hazardous Air Pollutants; and those that have been proposed or adopted for regulation by the respective state or are listed in state guidelines. Also of concern are air pollutant emissions that may contribute to the depletion of stratospheric ozone or global warming.

Areas with air quality better than the National Ambient Air Quality Standards (NAAQS) for criteria air pollutants are designated as being in attainment, while areas with air quality worse than the NAAQS for such pollutants are designated as being in nonattainment. Areas may be designated as unclassified when sufficient data for assigning attainment status are lacking. Attainment status designations are assigned by county, metropolitan statistical area, consolidated metropolitan statistical area, or portions thereof. Air Quality Control Regions designated by the U.S. Environmental Protection Agency (EPA) are listed in 40 CFR 81.

For locations that are in an attainment area for criteria air pollutants, Prevention of Significant Deterioration regulations limit pollutant emissions from new sources and establish allowable increments of pollutant concentrations. Three Prevention of Significant Deterioration classifications are specified with the criteria established in the Clean Air Act amendments. Class I areas include national wilderness areas; memorial parks larger than 2,020 hectares (5,000 acres); national parks larger than 2,430 hectares (6,000 acres); and areas that have been redesignated as Class I. Class II areas are all areas not designated as Class I. No Class III areas have been designated. Idaho National Engineering and Environmental Laboratory (INEEL) and the Savannah River Site (SRS) are within attainment areas (Class II) for the criteria air pollutants. INEEL is located about 50 kilometers (33 miles) from the Craters of the Moon Wilderness Area Class I area. There are no Class I areas within 100 kilometers (62 miles) of SRS.

Baseline air quality is typically described in terms of the pollutant concentrations modeled for existing sources at each site and the background air pollutant concentrations measured near the sites. For criteria pollutants at Argonne National Laboratory-West (ANL-W), baseline concentrations are based on 1) dispersion modeling at the site boundary centered at the INTEC facility, performed for the *Idaho High-Level Waste and Facilities Disposition Draft Environmental Impact Statement* (DOE 1999), using 1997 actual emissions and excluding ANL-W; and 2) dispersion modeling at the site boundary centered on ANL-W, using 1997 actual emissions. The modeling performed for the High-Level Waste and Facilities Disposition EIS used EPA's ISCST3 model with hourly meteorological data. The ANL-W modeling used EPA's SCREEN3 model, which is very conservative compared to ISCST3, and uses a set of worst-case meteorological conditions to predict a maximum one-hour concentration. This one-hour concentration was converted to other averaging times using regulatory scaling factors (SCDHEC 1993). For these reasons, the ANL-W concentrations are extremely conservative. For SRS, concentrations for existing sources were obtained from the *Savannah River Site Spent Nuclear Fuel Management Final Environmental Impact Statement* (DOE 2000). These concentrations were compared with Federal and state regulations or limits (Table B-1). To determine human health risk, modeled chemical concentrations in air were weighed against chemical-specific toxicity values.

B.2.2 Description of Impact Assessment

Potential air quality impacts of pollutant emissions were evaluated for each alternative. This assessment included a comparison of emissions from each alternative with applicable Federal and state ambient air quality standards. If both Federal and state standards exist for a given pollutant and averaging period, compliance was evaluated using the more stringent standard.

Table B–1 Impact Assessment Protocol for Air Quality

<i>Resources</i>	<i>Required Data</i>		<i>Measure of Impact</i>
	<i>Affected Environment</i>	<i>Alternative</i>	
Criteria air pollutants and other regulated pollutants ^a	Modeled ambient concentrations (micrograms per cubic meter) of air pollutants from existing sources at site	Emission rate (kilograms per year) of air pollutants from facility and concentrations of air pollutants	Contribution of proposed alternative and total concentration of each pollutant at or beyond site boundary compared to applicable standard
Toxic/hazardous air pollutants ^b		Emission rate (kilograms per year) of toxic air pollutants from facility (micrograms per cubic meter)	

^a Carbon monoxide; hydrogen fluoride; lead; nitrogen oxides; ozone; particulate matter with an aerodynamic diameter less than or equal to 10 microns; particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; sulfur dioxide; total suspended particulates.

^b Clean Air Act Title III pollutants, pollutants regulated under the National Emission Standards for Hazardous Air Pollutants, and other state-regulated pollutants.

Air pollutant emissions and concentrations data for each alternative, including the No Action Alternative, were based on information obtained in response to data requests to INEEL (ANL 1999) and on the SRS Spent Nuclear Fuel Final EIS (DOE 2000). For INEEL, a dispersion modeling analysis using the EPA SCREEN3 Model (Version 96043) (EPA 1995) was performed to estimate air quality impacts associated with the various alternatives. Emissions from ANL-W emergency diesel generators were modeled, in addition to cadmium emissions from the Fuel Conditioning Facility stack. The generators were modeled as ground-level volume sources; the cadmium emissions were modeled as an elevated point source release. Note that the emissions from the emergency generators are not specific to any given alternative, but are representative of the current operation of ANL-W. The cadmium emissions are specific to the current electrometallurgical treatment process. However, neither cadmium emissions nor emergency generator emissions are expected to increase as a result of any of the alternatives. Concentrations were predicted at 16 INEEL site boundary receptors and were compared to the ambient air quality standards.

For SRS, concentrations were obtained by scaling the concentrations in the SRS Spent Nuclear Fuel Final EIS (DOE 2000) based on the mass of sodium-bonded spent nuclear fuel to be processed under this EIS compared to the mass of spent nuclear fuel to be processed under the SRS Spent Nuclear Fuel Final EIS. The resulting concentrations were compared to the ambient air quality standards.

Ozone is typically formed as a secondary pollutant in the ambient air (troposphere). It is formed from primary pollutants such as nitrogen oxides and volatile organic compounds which emanate from vehicular (mobile), natural, and other stationary sources and mix in the presence of sunlight. Ozone is not emitted directly as a pollutant from the sites. Although ozone may be regarded as a regional issue, specific ozone precursors, notably nitrogen dioxide and volatile organic compounds, were analyzed as applicable to the alternatives under consideration.

Emissions of potential stratospheric ozone-depleting compounds such as chlorofluorocarbons were not evaluated, as no emissions of these pollutants were identified.

Final Environmental Impact Statement for the Treatment and Management of Sodium-Bonded Spent Nuclear Fuel

B.3 WATER RESOURCES

B.3.1 Description of Affected Resources

Water resources are the surface and subsurface waters that are suitable for human consumption; agricultural purposes; irrigation; or industrial/commercial purposes, and that could be impacted by the treatment of sodium-bonded spent nuclear fuel. This analysis involves the review of engineering estimates of expected water use and effluent discharges associated with the alternatives addressed in this EIS and the impacts of these alternatives on local water quality (including surface water and groundwater).

Surface water flow and quality data were obtained from existing reports. Groundwater users, information on water use rights, and groundwater quality data also were obtained from existing reports.

B.3.2 Description of Impact Assessment

B.3.2.1 Water Use

The assessment of alternatives analyzed how the volumes of current water usage and effluent discharges would change as a result of each alternative addressed in this EIS. A determination of the impacts of the alternatives on water usage and effluent discharge is summarized in **Table B-2**.

Table B-2 Impact Assessment Protocol for Water Use and Effluent Discharge

<i>Resources</i>	<i>Required Data</i>		<i>Measure of Impact</i>
	<i>Affected Environment</i>	<i>Alternative</i>	
Surface water availability	Surface waters near the facilities, including average flow and numbers of downstream users	Volumes of withdrawals from and discharges to surface waters	Changes in availability to downstream users of water for human consumption, irrigation, or animal feeding ^a
Groundwater availability	Groundwater near the facilities, including existing water rights for major water users and contractual agreements for water supply use within impacted area	Volumes of withdrawals from groundwater	Changes in availability of groundwater for human consumption, irrigation, or animal feeding

^a For surface water availability, an impact is assumed if withdrawals exceed 10 percent of the 7-day, 10-year low-flow of the stream.

If the determination reflected an increase in water use or effluent discharge, then an evaluation of the design capacity of the water and effluent treatment facilities was made to determine whether the design capacity would be exceeded by the additional flow. If the combined flow (i.e., the existing flow plus that of the proposed activities) were less than the design capacity of the water and effluent treatment plants, then it was assumed there would be no impact on water availability for local users, nor on the receiving stream from effluent discharges. Since flows from the facilities proposed to treat sodium-bonded spent nuclear fuel were found not to exceed the design capacity of the existing water or effluent treatment facilities, no additional analysis of water availability was performed.

B.3.2.2**Water Quality**

The water quality impact assessment for this EIS analyzed how effluent discharges to surface water and groundwater resulting from the alternatives would affect current water quality. The determination of the impacts of the alternatives is summarized in **Table B–3**, and consisted of a comparison of the projected water quality with relevant regulatory standards such as the Clean Water Act, Safe Drinking Water Act, state regulations, and existing permit conditions. Separate analyses were conducted for surface water and groundwater impacts, as described below.

Surface Water Quality

The evaluation of surface water quality impacts focused on the quality and quantity of the effluent to be discharged and the quality of the receiving stream upstream and downstream from the discharge. The evaluation of effluent quality involved a review of the expected parameters, such as design average flows, as well as the effluent parameters reflected in the existing or expected National Pollutant Discharge Elimination System (NPDES) permit. Those parameters include metals; organic and inorganic chemicals; radionuclides; and any other parameters that affect the local environment. Water quality management practices were reviewed to ensure that NPDES permit limitations would be met. Factors that currently degrade water quality also were identified.

Table B–3 Impact Assessment Protocol for Water Quality

<i>Resources</i>	<i>Required Data</i>		<i>Measure of Impact</i>
	<i>Affected Environment</i>	<i>Alternative</i>	
Surface water quality	Surface waters near the facilities in terms of stream classifications and changes in water quality	Expected contaminants and contaminant concentrations in discharges to surface water	Compliance of discharges to surface water with relevant standards of Clean Water Act or with state regulations and existing NPDES permits
Groundwater quality	Groundwater near the facilities in terms of classification, presence of designated sole-source aquifers, and changes in quality of groundwater	Expected contaminants and contaminant concentrations in discharges that could reach groundwater	Concentrations of contaminants in groundwater exceeding standards established in accordance with Safe Drinking Water Act or state regulations

Groundwater Quality

No effluent discharges to groundwater are anticipated from any of the alternatives. Therefore, an analysis of impacts to groundwater quality was not performed.

B.4 SOCIOECONOMICS**B.4.1 Description of Affected Resources**

Socioeconomic impacts are defined in terms of changes to the demographic and economic characteristics of a region. The number of jobs created by treatment of sodium-bonded spent nuclear fuel could affect regional employment, income, and expenditures. Job creation is characterized by two types: (1) construction jobs related to modification of existing facilities, which may be transient in nature and short in duration and thus less likely to impact public services; and (2) jobs related to plant operations that are required for a decade or more and possibly could create additional service requirements in the region of influence.

The socioeconomic environment is made up of two geographic regions, the regional economic area and the region of influence. Regional economic areas are made up of regional economies and include industrial and

Final Environmental Impact Statement for the Treatment and Management of Sodium-Bonded Spent Nuclear Fuel

service sector characteristics and their linkages to the communities within a region. These linkages determine the nature and magnitude of any effect associated with a change in regional economic activity. For example, as work expands within a region, the money spent on accomplishing this work flows into the local economy, where it is spent on additional jobs, goods, and services within the regional economic area.

Similarly, potential demographic impacts were assessed for the region of influence. The region of influence could represent a smaller geographic area—one in which only the housing market and local community services would be significantly affected by a given alternative. Site-specific regions of influence were identified as those counties in which approximately 90 percent of the site's work force reside. This distribution reflects an existing residential preference for people currently employed at the sites, and was used to estimate the distribution of new workers supporting the alternatives.

B.4.2 Description of Impact Assessment

The socioeconomic impact assessment analyzes both the potential positive and negative impacts of each alternative, including the No Action Alternative. For each regional economic area, data were compiled on the current socioeconomic conditions, including unemployment rates, economic industrial and service sector activities, and the civilian labor force. Work force and cost requirements for each alternative were determined to measure their possible effect on these socioeconomic conditions. For each region of influence, census statistics were compiled on population, housing demand, and community services. U.S. Census Bureau population forecasts for the regions of influence were combined with overall projected work force requirements for each of the alternatives being considered at each of the sites to determine the extent of impacts to housing demand and levels of community services (**Table B-4**).

B.5 WASTE MANAGEMENT

B.5.1 Description of Affected Resources

The operation of support facilities for treating sodium-bonded spent nuclear fuel would generate several types of waste, depending on the alternative. Such waste includes the following:

- **High-level radioactive:** The highly radioactive waste material that results from the processing of spent nuclear fuel, including liquid waste produced directly in processing and any solid waste derived from the liquid. High-level radioactive waste contains transuranic waste and fission products requiring permanent isolation.
- **Transuranic:** Waste containing more than 100 nanocuries of alpha-emitting transuranic isotopes per gram of waste with half-lives greater than 20 years, except for: (1) high-level radioactive waste; (2) waste that has been determined by DOE and the EPA not to need the degree of isolation required by 40 CFR 191; and (3) waste that the U.S. Nuclear Regulatory Commission has approved for disposal, case by case, in accordance with 10 CFR 61. Mixed transuranic waste contains hazardous components regulated under the Resource Conservation and Recovery Act (RCRA).
- **Low-level radioactive:** Waste that contains radioactivity and is not classified as high-level radioactive waste; transuranic waste; spent nuclear fuel; or the tailings or waste produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium, may be classified as low-level radioactive waste, provided the transuranic concentration is less than 100 nanocuries per gram of waste.

Table B–4 Impact Assessment Protocol for Socioeconomics

Resources	Required Data		Measure of Impact
	Affected Environment	Alternative	
Regional Economic Characteristics			
Work force requirements	Site work force projections from DOE sites	Estimated construction and operating staff requirements and schedule	Work force requirements added to site work force projections
Regional economic area civilian labor force	Labor force projections based on state population projections		Change in work force requirements as a percentage of the civilian labor force
Unemployment rate	1996 unemployment rates in counties surrounding sites and in host states		Projected change in unemployment rates
Population and Housing			
Population	Latest available population projection estimates from the U.S. Census Bureau	Estimated contribution to projected population	Projected change in population projection
Housing (percentage of occupied housing units)	Latest available rates from the U.S. Census Bureau	Assessment of potential need for housing units to meet work force requirements	Impacts are not expected since work force requirements would be small
Community Services			
Education Percentage of operating capacity for school districts in region of influence Teacher-to-student ratio	Latest available rates from the U.S. Census Bureau	Assessment of potential need for new schools	Impacts are not expected since work force requirements would be small
Public safety Ratio of police and firefighters to 100,000 residents		Assessment of potential need for additional teachers	
Health care Number of hospital beds and physicians per 100,000 residents		Assessment of potential need for new officers and firefighters	
		Assessment of potential need for hospitals and physicians	

- **Mixed:** Radioactive waste that also contains hazardous components regulated under RCRA.
- **Hazardous:** Under RCRA, waste that, because of its characteristics, may (1) cause or significantly contribute to an increase in mortality or an increase in serious, irreversible, or incapacitating reversible illness; or (2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed. Hazardous waste appears on special EPA lists or possesses at least one of the following characteristics: ignitability, corrosivity, reactivity, or toxicity. This category does not include source, special nuclear, or by-product material as defined by the Atomic Energy Act.
- **Nonhazardous:** Discarded material including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations and from community activities.

Final Environmental Impact Statement for the Treatment and Management of Sodium-Bonded Spent Nuclear Fuel

This category does not include source, special nuclear, or by-product material as defined by the Atomic Energy Act.

Waste associated with the alternatives for treating the sodium-bonded spent nuclear fuel would be managed in existing or already-planned-for treatment, storage, and disposal facilities. The management of this waste could have an impact on existing site facilities. Waste generated during modifications to existing facilities could produce additional hazardous debris.

Waste management activities in support of treating sodium-bonded spent nuclear fuel would be contingent on Records of Decision issued for the *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste* (DOE 1997a). Depending on future waste type-specific Records of Decision, in accordance with that EIS, waste could be treated and disposed of on site or at regionally or centrally located waste management centers. According to the Transuranic Waste Record of Decision issued January 20, 1998, transuranic and transuranic mixed waste would be treated on site according to current planning-basis Waste Isolation Pilot Plant waste acceptance criteria and shipped to the Waste Isolation Pilot Plant for disposal. The impacts of disposing of transuranic waste at the Waste Isolation Pilot Plant are described in the *Waste Isolation Pilot Plant Disposal Phase Final Supplemental Environmental Impact Statement* (DOE 1997b). Per the Hazardous Waste Record of Decision issued August 5, 1998, nonwastewater hazardous waste would continue to be treated and disposed of at offsite commercial facilities, with SRS continuing to treat some of its own hazardous waste on site in existing facilities, where this is economically favorable.

B.5.2 Description of Impact Assessment

As shown in **Table B-5**, impacts were assessed by comparing the projected waste stream volumes generated from the alternatives at each site with current site waste generation rates and storage volumes. For sodium-bonded spent nuclear fuel treatment, only the impacts related to the capacities of waste management facilities were considered. Environmental impacts of waste management facility operation are evaluated in other facility-specific or site-wide National Environmental Policy Act (NEPA) documents. Projected waste generation rates for the alternatives were compared with the processing rates and capacities of those existing treatment, storage, and disposal facilities likely to be involved in managing the additional waste. Another factor considered is the reduction in volume of spent nuclear fuel and high-level radioactive waste destined for geologic disposal under each alternative.

The waste generation rates associated with sodium-bonded spent nuclear fuel treatment either were provided by the sites' technical personnel or were estimated based on evaluating similar processes, with adjustments made to account for differences in the amounts of materials processed.

B.6 CUMULATIVE IMPACTS

Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time (40 CFR 1508.7). The cumulative impact analysis for this EIS involved combining the impacts of the sodium-bonded spent nuclear fuel treatment alternatives (including No Action) with the impacts of other present and reasonably foreseeable activities in a region of influence.

The regions of influence for different resources can vary widely in extent. For example, the region of influence for waste management generally would be confined to the site itself; whereas the region of influence for human health would include areas extending out to 80 kilometers (50 miles) from each site.

Table B–5 Impact Assessment Protocol for Waste Management

<i>Resources</i>	<i>Required Data</i>		<i>Measure of Impact</i>
	<i>Affected Environment</i>	<i>Alternative</i>	
Waste management capacity related to: <ul style="list-style-type: none"> - High-level radioactive waste - Transuranic waste - Low-level radioactive waste - Mixed waste - Hazardous waste - Nonhazardous waste 	Site generation rates (cubic meters per year) for each waste type Site management capacities (cubic meters) or rates (cubic meters per year) for potentially affected treatment, storage, and disposal facilities for each waste type	Generation rates (cubic meters per year) of each waste type from modification and operation of existing facilities used to treat the sodium-bonded spent nuclear fuel	Combination of waste generation volumes from: (1) facilities that treat sodium-bonded spent nuclear fuel, and (2) current site and additional future generation volumes, in comparison to the capacities of applicable waste management facilities
Disposal capacity for transuranic waste (including mixed transuranic waste) ^a	Transuranic waste volume (cubic meters) expected to be disposed of at the Waste Isolation Pilot Plant Capacity at the Waste Isolation Pilot Plant (cubic meters)	Total transuranic waste generated (cubic meters) by spent nuclear fuel treatment facilities	Combination of transuranic waste generation volumes from: (1) facilities that treat sodium-bonded spent nuclear fuel, and (2) current site transuranic waste generation volume, in comparison to the capacity of the Waste Isolation Pilot Plant

^a This additional entry is made for transuranic waste disposal because of its comparison with Waste Isolation Pilot Plant capacity.

In general, cumulative impacts were calculated by adding other planned and reasonably foreseeable future actions to the values for the baseline affected environment (i.e., conditions attributable to past and present actions by DOE and other public and private entities). This cumulative value was weighed against the appropriate impact indicators to determine the potential for impact. For this cumulative impact assessment, it was conservatively assumed that all facilities would operate concurrently at the DOE sites. Only selected indicators of cumulative impacts (**Table B–6**) were evaluated.

Table B–6 Selected Indicators of Cumulative Impacts

<i>Category</i>	<i>Indicator</i>
Resource use	Electricity use Water use Workers required
Air quality	Percent of NAAQS for criteria pollutants
Human health	Maximally exposed offsite individual, population, workers <ul style="list-style-type: none"> - dose - latent cancer fatalities
Waste	Site waste total and generation rate: <ul style="list-style-type: none"> - High-level radioactive waste - Transuranic waste - Low-level radioactive waste - Hazardous mixed waste

The analysis focused on the potential for cumulative impacts at each candidate site from DOE actions under detailed consideration at the time of this EIS (**Table B–7**). Non-DOE actions also were considered where information was readily available. Public documents prepared by agencies of Federal, state, and local governments were the primary sources of information for non-DOE actions.

Final Environmental Impact Statement for the Treatment and Management of Sodium-Bonded Spent Nuclear Fuel

Table B–7 Other Past, Present, and Reasonably Foreseeable Actions Included in the Cumulative Impact Assessments

<i>Activities</i>	<i>INEEL</i>	<i>SRS</i>
Surplus highly enriched uranium disposition		X
Surplus plutonium disposition		X
Interim management of nuclear materials at SRS		X
Management of waste	X	X
Radioactive releases from the Vogtle Nuclear Power Plant		X
Management of plutonium residues and scrub alloy at Rocky Flats		X
Construction and operation of a tritium extraction facility at SRS		X
Advanced mixed waste treatment project	X	
Defense waste processing facility		X
High-level waste and facility disposition	X	

It was assumed that construction impacts related to internal modification of existing facilities would not be cumulative, because construction typically is short in duration and construction impacts generally are temporary. Deactivation of the facilities utilized for the treatment of sodium-bonded spent nuclear fuel was not addressed in the cumulative impact estimates. Given the uncertainty regarding the timing of the deactivation and the fact that facilities could be used for other projects, any impact estimate at this time would be premature. The evaluation of decontamination and decommissioning impacts will be provided in NEPA documentation closer to the actual time of those actions.

Recent site-wide NEPA documents (**Table B–8**) provide the latest comprehensive evaluation of cumulative impacts for the sites.

Table B–8 Recent Comprehensive NEPA Documents for DOE Sites Assessed in This EIS

<i>Site</i>	<i>Document</i>	<i>Year</i>	<i>Record of Decision First Issued</i>
INEEL	<i>Idaho High-Level Waste and Facilities Disposition Draft Environmental Impact Statement</i> (DOE 1999)	1999	—
SRS	<i>Savannah River Site Waste Management Final Environmental Impact Statement</i> (DOE 1995)	1995	October 1995

B.7 REFERENCES

ANL (Argonne National Laboratory), 1999, *Response to Data Call from SAIC for Sodium-Bonded Spent Nuclear Fuel Treatment Technologies*, Idaho National Engineering and Environmental Laboratory, Idaho Falls, June.

DOE (U.S. Department of Energy), 1995, *Savannah River Site Waste Management Final Environmental Impact Statement*, DOE/EIS-0217, Savannah River Operations Office, Aiken, South Carolina, July.

DOE (U.S. Department of Energy), 1997a, *Final Waste Management Programmatic Environmental Impact Statement for Managing Treatment, Storage, and Disposal of Radioactive and Hazardous Waste*, DOE/EIS-0200-F, Office of Environmental Management, Washington, DC, May.

DOE (U.S. Department of Energy), 1997b, *Waste Isolation Pilot Plant Disposal Phase Final Supplemental Environmental Impact Statement*, DOE/EIS-0026-S-2, Carlsbad Area Office, Carlsbad, New Mexico, September.

DOE (U.S. Department of Energy), 1999, *Idaho High-Level Waste and Facilities Disposition Draft Environmental Impact Statement*, DOE/EIS-0287D, Idaho Operations Office, Idaho Falls, Idaho, December.

DOE (U.S. Department of Energy), 2000, *Savannah River Site Spent Nuclear Fuel Management Final Environmental Impact Statement*, DOE/EIS-0279, Savannah River Operations Office, Aiken, South Carolina, March.

EPA (U.S. Environmental Protection Agency), 1995, *SCREEN3 Model User's Guide*, EPA-454/B-95-004, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina, September.

SCDHEC (South Carolina Department of Health and Environmental Control), 1993, *Air Quality Modeling Guidelines*, Bureau of Air Quality, Columbia, South Carolina, August.